C M K

Arboricultural Impact Report

MetroLink, Dublin

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

JACOBS

MITCHELL + ASSOCIATES

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Summary

CMK Hort & Arb Ltd. undertook an assessment of trees within the assessment boundary between 2019 and 2021. A total of 5,435 trees were assessed. The trees were located within parks, streetscapes, agricultural lands and roadside screen plantings.

An estimated 3,437 trees will require removal to facilitate the development of the MetroLink. 112 trees that are shown for removal are located near the city center (south of the Royal Canal). The balance to be removed are located within areas between the Royal Canal and Lissenhall. These totals do not include category 'U' trees (i.e. those that have failed or are in a state of late decline).

The highest concentration of tree loss is within tree populations providing roadside screening on either side of the Swords Bypass R132 and directly south of the M50, to facilitate Northwood Station.

A number of updates have been made to the originally submitted report (the **Original AIA Report**) in terms of additional trees recorded and revisions to impacts on trees at a variety of locations including Northwood, Dardistown, Fosterstown. This arose from a further review of the site boundaries, engagement with the MetroLink project team and further review of the Original AIA Report to ensure this reflected the most up to date information available. The net result is a reduction in the impact on trees, specifically the reduction in the removal of trees from 3,561 to 2,416. An "update" heading has been inserted for each of the sections below, where appropriate, for ease of review, and this explains the nature of the update, as well as the reason for this.

Overview of existing trees

Parks and public open spaces

St Stephen's Green represents the most important assemblage of trees in terms of age, diversity and landscape value within the MetroLink site. The eastern section of the park falls within the assessment boundary and contains a number of very notable trees including very large London plane (Platanus x hispanica), horse chestnut (Aesculus hippocastanum), Turkey oak (Quercus cerris), copper beech (Fagus sylvatica 'Purpurea'), and sycamore (Acer pseudoplatanus).

Other parks within the assessment boundary are Four Masters Park, Albert College Park, Griffith Park, Balheary Park and Northwood, Santry.

Berkeley Road Park contains a number of well-developed early-mature fastigiate hornbeam (Carpinus betulus 'fastigiata') along its boundaries with other more ornamental species within the park including Golden Rain (Laburnum anagyroides) and the hawthorn cultivar Paul's Scarlet (Crataegus laevigata 'Paul's Scarlet).

The section of Albert College Park within the assessment boundary borders Ballymun Road (R108) and Hampstead Avenue and contains screen and ornamental plantings mainly composed of earlymature ash (Fraxinus excelsior), Norway maple (Acer platanoides) and Monterey cypress (Cupressus macrocarpa).

The section of Northwood Park within the assessment boundary is densely populated with closely spaced trees. The main species are elm (Ulmus spp.), poplar (Populus spp.) and beech (Fagus sylvatica).

Street trees

A number of London plane (Platanus x hispanica) have been planted on O'Connell Street as part of the street's upgrade however the main street tree species/cultivars within the survey area are fastigiate hornbeam (Carpinus betulus 'fastigiata'), small leaved lime

cultivars (Tilia cordata cv) and more occasionally Norway maple cultivars (Acer platanoides cv). Unusually there are a number of young gingko (Gingko biloba) planted within paving on Berkeley Road.

A number of mature London plane (Platanus x hispanica) and sycamore (Acer pseudoplatanus) are located on St. Mobhi Road (R108) opposite the Homefarm training grounds.

Private lands/gardens

A number of trees including mature Monterey pine (Pinus radiata) and copper beech (Fagus sylvatica 'Purpurea') are located at the entrance to the Whitehall College of Further Education with the adjacent Homefarm training grounds containing large mature Monterey cypress (Cupressus macrocarpa) and individual specimens of Austrian pine (Pinus nigra) and copper beech (Fagus sylvatica 'Purpurea').

The area between Santry Avenue to the M50 encompasses a housing development (Domville Woods), Gulliver's retail park, undeveloped lands to the west of the Old Ballymun Road, lands associated with the Charter School and the private garden of St Anne's on Charter School Hill. The trees within the Domville Woods estate most likely originate from Santry Demesne. The most prominent tree is a large mature copper beech (Fagus sylvatica 'Purpurea') with a number of mature sycamore (Acer pseudoplatanus), ash (Fraxinus excelsior) hawthorn (Crataegus monogyna) and Austrian pine (Pinus nigra) within an open space area to the west of the development.

Gulliver's retail park contains a small number of mature common lime (Tilia x europaea) and horse chestnut (Aesculus hippocastanum) which originate from Santry Demesne.

A derelict site between the Old Ballymun Road and the R108 is essentially disused agricultural lands which contains a number of large mature beech (Fagus sylvatica) and sections of hedgerows mainly composed of hawthorn (Crataegus monogyna).

The Charter School lands contain large Leyland cypress (xCupressocyparis leylandii) on either side of the entrance road with scattered mixed age self-seeded deciduous species within the grounds of the former school.

The lands at St Anne's, Charter School Hill are within private ownership and have been developed as a garden over a number of years. There is a relatively wide range of tree species present including recent plantings of red oak (Quercus rubra) and eucalyptus (Eucalyptus spp.) with mature horse chestnut (Aesculus hippocastanum), sycamore (Acer pseudoplatanus) and Monterey cypress (Cupressus macrocarpa) scattered throughout the site. The lands are bordered by Austrian pine (Pinus nigra) and Scots pine (Pinus sylvestris) to the west with Leyland cypress (xCuprocyparis leylandii) to the north.

The areas between the M50 and Swords are mainly agricultural and to a lesser extent industrial. Tree species are mainly located within hedgerows with the predominant species ash (Fraxinus excelsior). The entrance road to the McComish Ltd. concrete products facility (R132) has been planted with small leaved lime (Tilia cordata) on either side of the road. These trees have been well maintained and have developed well.

Roadside and motorway screen plantings

Roadside plantings along the Swords bypass (R132) are mainly populated by poplar (Populus spp.), alder (Alnus spp.), ash (Fraxinus excelsior), Norway maple (Acer platanoides), birch (Betula pendula) and beech (Fagus sylvatica). Management of these plantings to date has been limited. Thinning of these plantings will be necessary in the near future.

A small area of land beside Lissenhall bridge contains a mixture of trees many of which predate the R132. These include mature holm oak (Quercus ilex), gean (Prunus avium), hornbeam (Carpinus betulus), beech (Fagus sylvatica) and occasional self-seeded ash (Fraxinus excelsior). The quality of the trees is generally good though appropriate management inputs would be beneficial to retain the trees into the future.

Agricultural lands

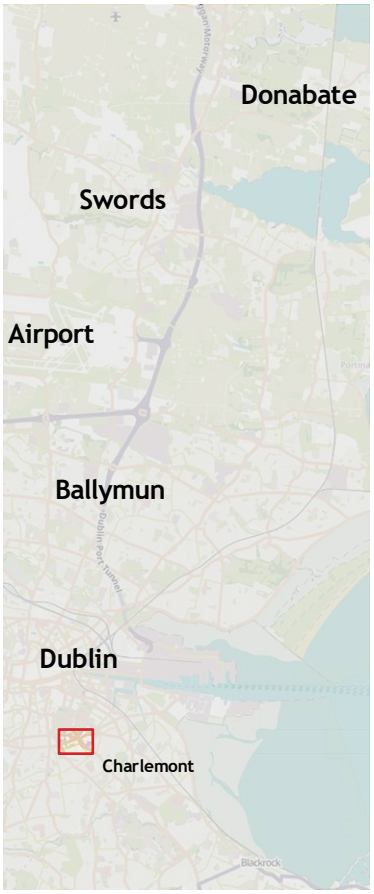
A section of the site lies between the M50 and Swords. These areas include Dardistown, the lands north of Naul Road and to the west of the R132 and the northern section of the site at Lissenhall.

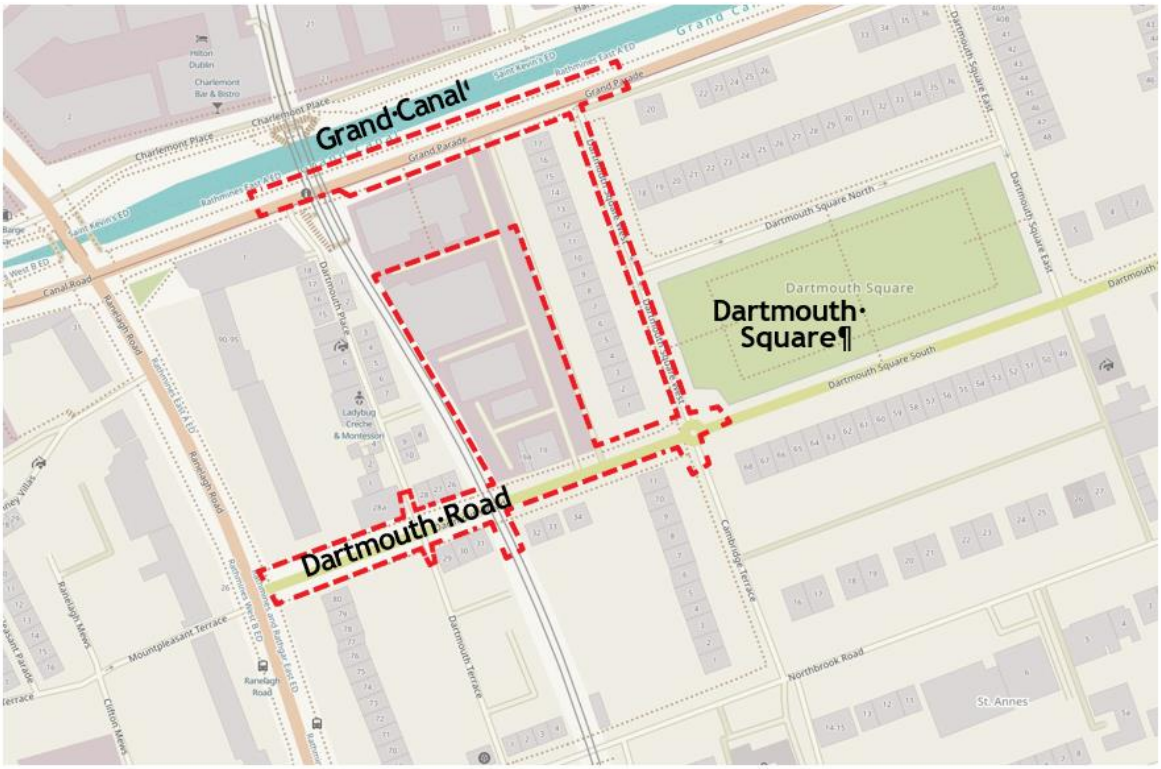
The lands at Dardistown include an access road to industrial units and arable fields. The trees are located on the hedgerows dividing arable fields and are ash (Fraxinus excelsior) with an understory of hawthorn (Crataegus monogyna). A screen planting of hazel (Corylus avellana) with alder (Alnus spp.) has been planted to the north of the access road (Sillogue Green) to the industrial units.

The land north of Naul Road is under arable management with the trees located within hedgerows. The primary species is ash (Fraxinus excelsior) with elder (Sambucus nigra) and hawthorn (Crataegus monogyna) more occasionally forming an understory. Most of the ash trees have been coppiced presumably to allow light to crops. The entrance road to the McComish Ltd Concrete Products facility accessed from the R132 has been planted with small leaved lime which have developed well.

Lissenhall is an agricultural area with hedgerows and a farm with associated buildings. The former contains hedgerows mainly populated with ash (Fraxinus excelsior) with the latter containing trees such as Monterey cypress (Cupressus macrocarpa).

Charlemont Station





Map 1: Charlemont Station assessment boundary

Project description

As this station is associated with a new development, the design has been coordinated not only with the developers of this new project, but also with the residents seeking to reduce the impacts on the existing neighbourhood conditions.

The proposed Project will terminate in Charlemont Station, however, the tunnel will continue south of Charlemont Station for approximately 360m to form a turnback facility to enable trains from the northern terminus at Estuary Station to reverse direction for the return journey. This tunnel extension will also facilitate overnight stabling of trains in preparation for the following day's operations. The design includes an adjacent intervention tunnel, parallel to the railway tunnel, connecting with the station so that staff can evacuate the railway tunnel south of the station in the event of an emergency.

The Charlemont station site and the new oversite development will share the open space at ground level. There will be two pedestrian entrances to the station, one located to the south within an area of open space, accessed off Dartmouth Road, which will also include a station emergency exit and bicycle parking, and one to the north in a more confined space accessing Grand Parade.

The design provides interchange with the Charlemont Luas stop. Access will be via the existing pedestrian footway in front of the Carroll's Building and then via new stairs and lift installed in front of the western end of the Carroll's building and adjacent to the Luas viaduct. In addition, access across Grand Parade to the proposed station will be enhanced through the provision of an atgrade pedestrian/cyclist crossing outside the station entrance.

Overview of existing trees

A total of 17 trees were surveyed. The trees within this assessment boundary are all street trees and composed of mature common lime (Tilia x europaea) and London plane (Platanus x hispanica). Their condition is generally good, notwithstanding normal age-related decay.

Arboricultural impact

Four established lime trees (*Tilia x europaea*) on Dartmouth Road will need to be removed to facilitate the construction of a plaza entrance south of the station.

Younger limes within the footprint of the proposed station will be impacted. These have been noted to have poor crown formation due to repeated canopy pruning likely due to accommodate previous works in the area.

Table 1 shows a breakdown of trees proposed for removal and their categories.

Category	Number
A	0
B	2
C	4
U	1
Total (excluding 'U')	6

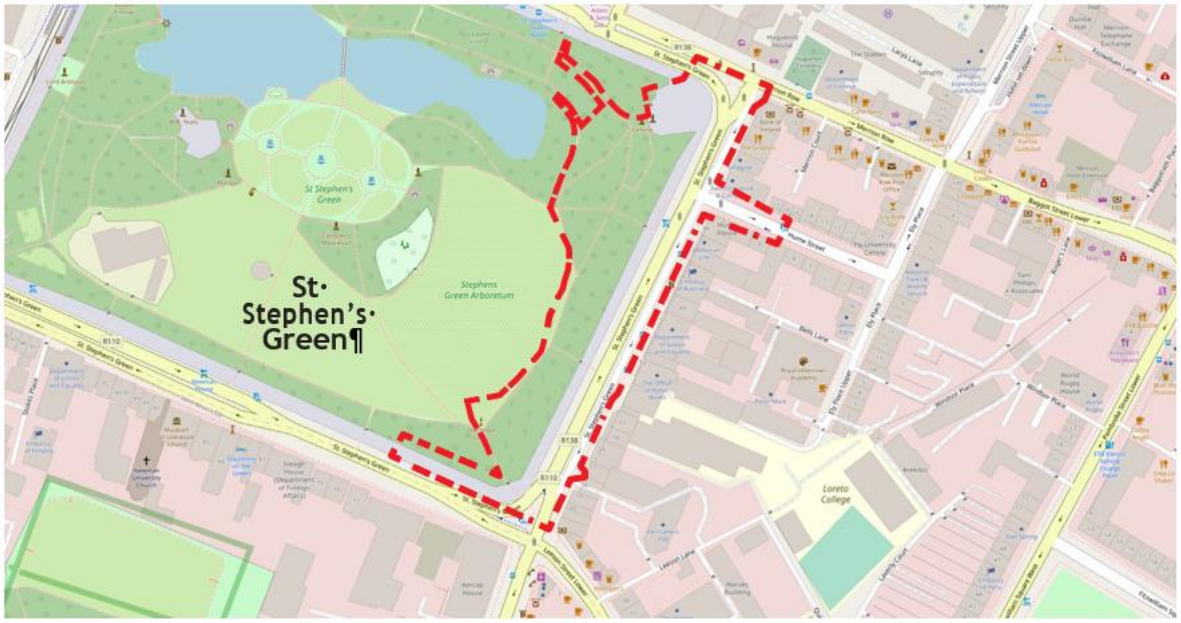
Table 1: Tree Removal Categories

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31107 and ML1-JAI-EIA-ROUT_XX-DR-Y-31108.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

2

St Stephen's Green Station



Map 2: St Stephen's Green assessment boundary

Project description

The station will lie partly under the boundary of the park and the footpath outside of the park and will extend partly under the western side of St Stephen's Green East roadway, to minimise the impact to both St Stephen's Green East and the Park.

A key objective of the urban realm design is to maintain as much of the park as possible. This is aided by placing the station box underground, partly under the park and partly under St Stephen's Green East Road and ensuring sufficient depth of the overlying soils to allow planting of new trees. The planting over the station box will comprise a mix of trees and grass to merge with the existing character of the park. The existing railings and footpath finishes will be conserved and replaced on completion of construction.

St Stephen's Green is an underground station with one public access point, with the station location being within the eastern fringe of the park. The proposed construction will result in excavation within the park and along the east boundary of St Stephen's Green. The station box at St Stephen's Green has been designed to allow for significant soil depths on top of the structure in order to allow for large mature trees to be reinstated on its roof. The mix of tree and shrub species will replicate the existing, with the aim to re-establish the affected area as quickly and as sustainably as possible. A mix of very large specimen trees and smaller specimen trees will aid in the establishment of the vegetation. Undergrowth species to match the adjacent will be planted to replicate the remainder of the park.

Overview of existing trees

The park contains many fine specimen trees within the survey area with many having grown into very large specimens. This is particularly noticeable in the vicinity of the Leeson Street entrance where very large specimen London plane (Platanus x hispanica), sycamore (Acer pseudoplatanus) and horse chestnut (Aesculus hippocastanum) are located. However, there are large specimens throughout the project area.

The boundaries appear to have been planted with holly (Ilex aquifolium) and privet (Ligustrum ovalifolium) to form an understory and provide screening. Many of these trees/shrubs are now mature and in mixed condition. Horse chestnut (Aesculus hippocastanum) appear to have been also planted on the boundaries. This would be consistent with similar parks and demesne landscapes where these trees were planted

for their ornamental value, in particular when flowering and displaying autumn colour. Disease and age-related decay appear to have reduced the numbers of these specimens over time.

Large, impressive holm oak (Quercus ilex) are also present within this section of the park with many exhibiting areas of decay which are consistent with age rather than overall decline.

The eastern boundary includes a small number of mature elm (Ulmus spp.) which have reached a large size and at the time of survey escaped being affected by Dutch elm disease (Ophiostoma spp.).

There has been some more recent planting including weeping ash (Fraxinus excelsior 'Pendula') and red oak (Quercus rubra), Persian ironwood (Parrotia persica) and Caucasian lime (Tilia x euchlora). Most have established well with a small number poorly established with limited long-term potential.

There are a number of more unusual specimens such as a mature Japanese pagoda tree (Sophora japonica) and a mature kōwhai (Sophora microphylla) also located here.

Small leaved lime cultivars (Tilia cordata cv) have been planted within the pavement outside of the park. These trees have generally developed well and have good long-term potential.

Arboricultural impact

A total of 225 trees were recorded within St Stephen's Green at the northeastern, eastern and south-eastern boundaries of the park. Street trees within paving on Hume Street were also included. A total of 64 trees will be need to be removed to facilitate the proposed works (refer to table 2). The age profile of the impacted trees contains a high number of older specimens, with 69% in the mature category. A further 15 trees (category U) are found to be in a state of decline, 7 are to be removed and 8 are to be retained.

Category	Number
A	5
B	45
C	14
U	7
Total (not including category 'U' trees)	64

Table 2: Tree Removal Categories (footprint of proposed St. Stephens Green station)

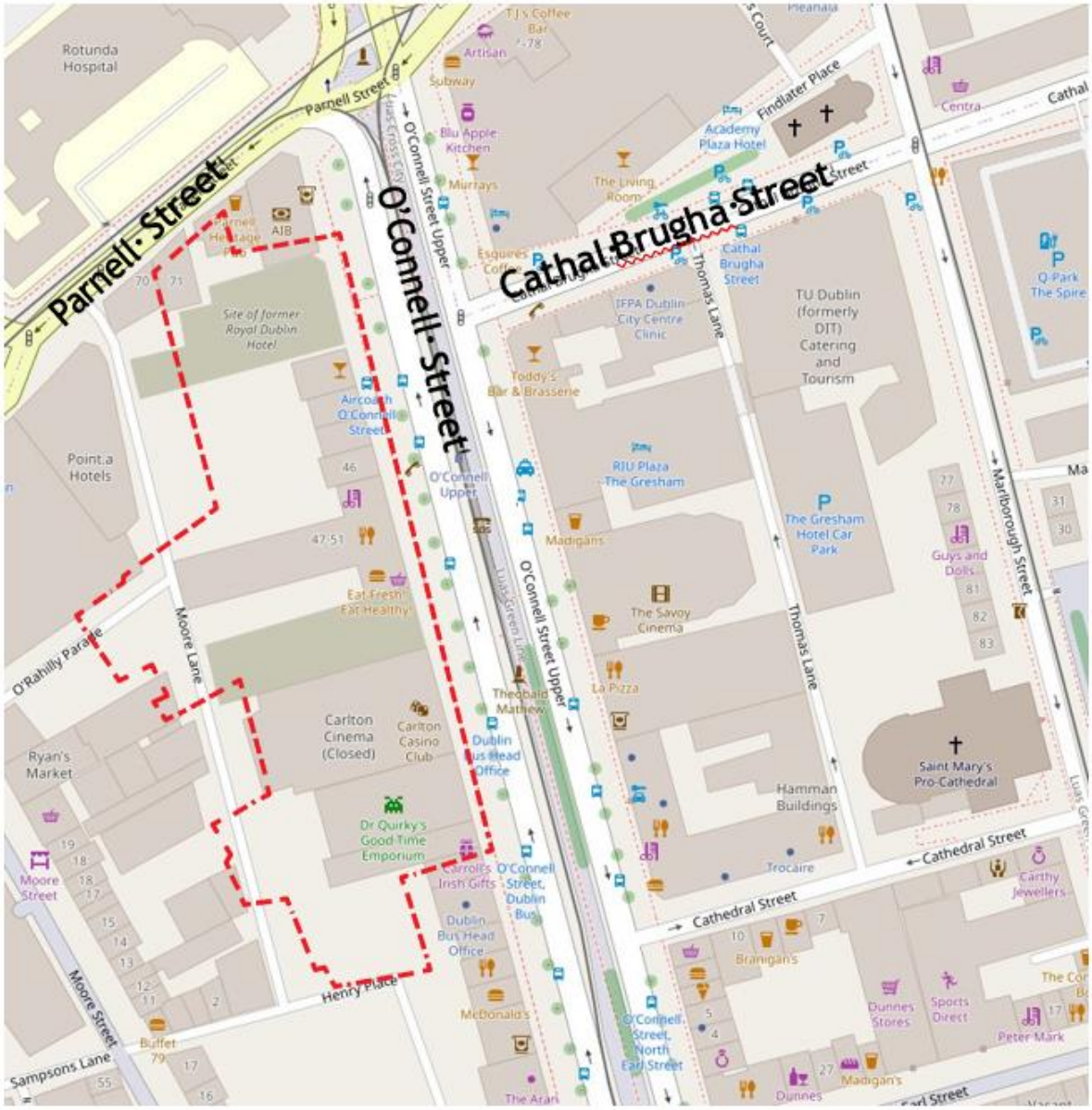
Apart from 18 holly (Ilex aquifolium), the most common tree species in the impacted group are caucasian lime (Tilia x euchlora) and horse chestnut (Aesculus hippocastanum), both of which have nine specimens requiring removal. The horse chestnuts have developed into fine specimens trees with many having grown into very large specimens.

On the parks eastern boundary trees that will be removed are a diverse range of ornamental, native and non-native species including London plane (Platanus x hispanica), sycamore (Acer pseudoplatanus), holm oak (Quercus ilex) and elm (Ulmus spp.).

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31104 to ML1-JAI-EIA-ROUT_XX-DR-Y-31105.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

O’Connell Street Station



Map 3: O'Connell Street Station assessment boundary

Project description

O'Connell Street Station will be located under the proposed Dublin Central development site on the northwestern side of O'Connell Street.

The site currently includes a vacant plot, streets, and buildings, some of which are protected structures. Dublin Central GP Ltd plans to build a mixed-use development, comprising restaurants and cafes, retail units, and offices over two to seven stories, with a ramp to a single basement, with parking for 32 cars and 364 bicycles, and plant and waste storage units. The proposals would also include conservation and repair of parts of the historic buildings on the site, demolition of some structures, and changes to the public realm including a new plaza at the junction of Moore Lane with Henry Place and O'Rahilly Parade.

As O'Connell Street Station would lie underground, it would need to be built as part of the enabling works for the over-site development. The station would be housed within a structural box below ground level and along the tunnel alignment. This structural box would be large enough to accommodate the construction and operation of the station.

Once the structural box is in place, the over-site development can be constructed over and around the station. The protected façades of the buildings along O'Connell Street would be retained as part of the Dublin Central development.

The entrances/exits to the station and other features such as ventilation shafts and emergency access would be incorporated into the overall development.

Overview of existing trees

The trees within this area are located within the pavement on a section of O'Connell Street Upper. The trees are London plane (Platanus x hispanica) planted within paving on both sides of the road and small leaved lime cultivars (Tilia cordata cv) within the central median and the area adjacent to the LUAS stop. The trees are generally in good condition however there has been a degree of storm damage to a number of specimens particularly the London plane. The trees in the vicinity of the LUAS stop have been pruned heavily to restrict crowns extending toward the LUAS infrastructure. The pruning of many of these trees has resulted in poor crown form.

Update

The Original AIA Report identified 13 trees to be removed to facilitate the erection of hoarding to protect building facades. Revisions to the hoarding has allowed all trees to be retained.

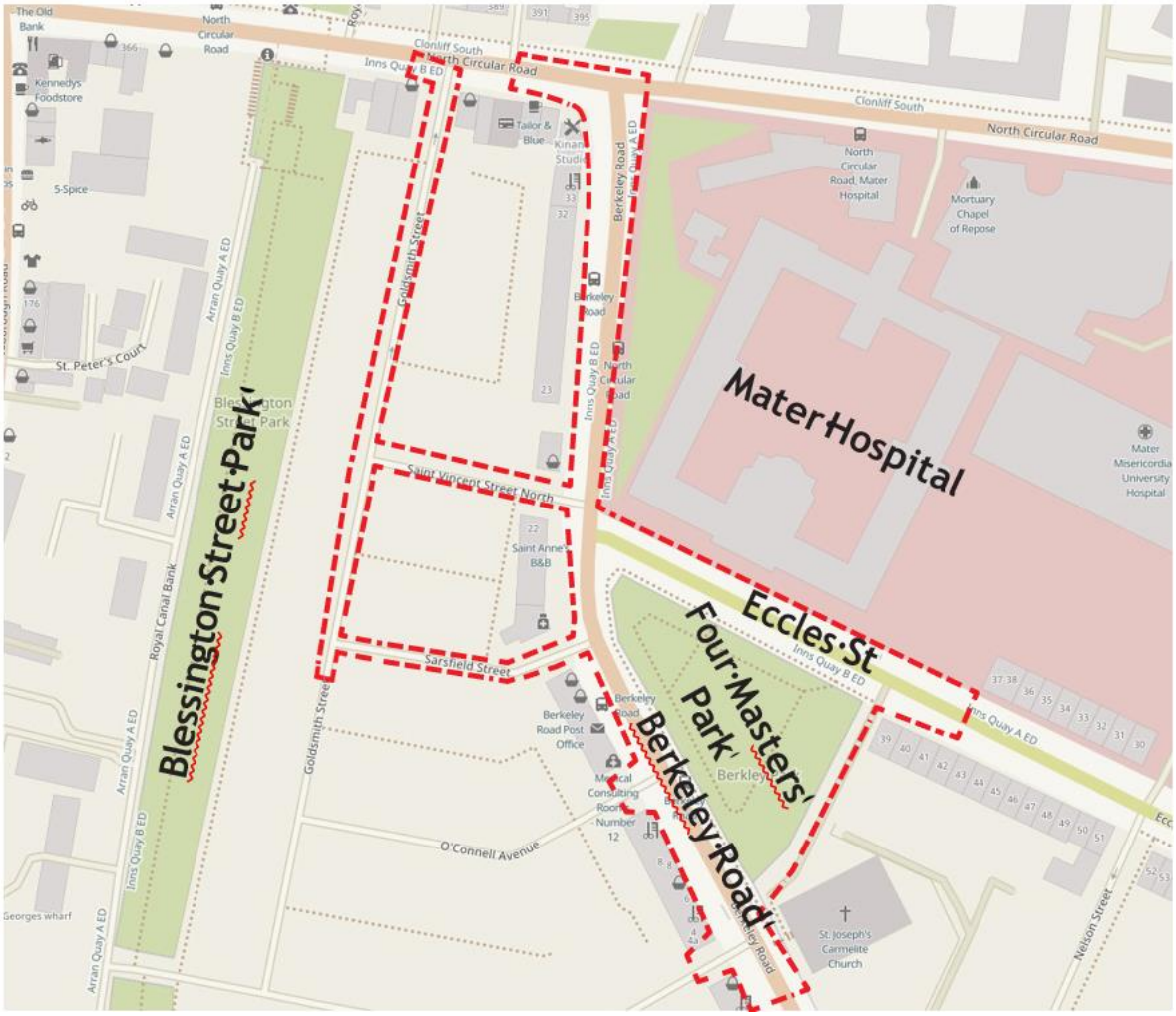
Arboricultural impact

No trees are to be removed from O'Connell Street. Refer to Table 3 and drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31102 to ML1-JAI-EIA-ROUT_XX-DR-Y-31103.

Category	Number
A	0
B	0
C	0
U	0
Total	0

Table 3: Tree Removal Categories

4 Mater Station



Map 4: Mater Station assessment boundary

Project Description

Mater Station is designed as a typical underground cut and cover station. This station will have three main levels in line with the typical underground station design; concourse, mezzanine and platform levels.

Mater Station is an underground station with one public access point. It is located on the site of the existing triangular shaped Four Masters Park, between Eccles Street and Berkeley Road. The proposed landscape scheme creates a public plaza to the main arrivals area at the entrance/exit. This active plaza then provides access to Eccles Street and Berkeley Road. It is proposed to create a shared surface plaza to Eccles Street to provide greater connectivity to the adjacent existing pedestrian network.

Four Masters Park will be reinstated in a similar fashion to the existing situation.

Overview of Existing Trees

The 50 trees within this area are located within Four Masters Park and surrounding streets. There are a range of species within Four Masters Park including mature fastigiate hornbeam (Carpinus betulus 'fastigiata'), London plane (Platanus x hispanica), magnolia cultivars (Magnolia cv), Laburnum (Laburnum anagyroides), English hawthorn (Crataegus laevigata ''Paul's Scarlet') and willow-leaved pear (Pyrus salicifolia 'Pendula'). The street trees on Eccles Street are mature fastigiate hornbeam with ginkgo (Ginkgo biloba) planted within paving on Berkeley Road and cherry cultivars within paving on Sarsfield Street.

Arboricultural impact

The impact of the proposed station with necessitate the removal of all trees within Four Masters' Park. The majority of the impacted trees are category 'B' mature fastigiate hornbeam with a smaller number of category 'A' London plane and ash (refer to Table 4 for a breakdown of Tree Removal Categories).

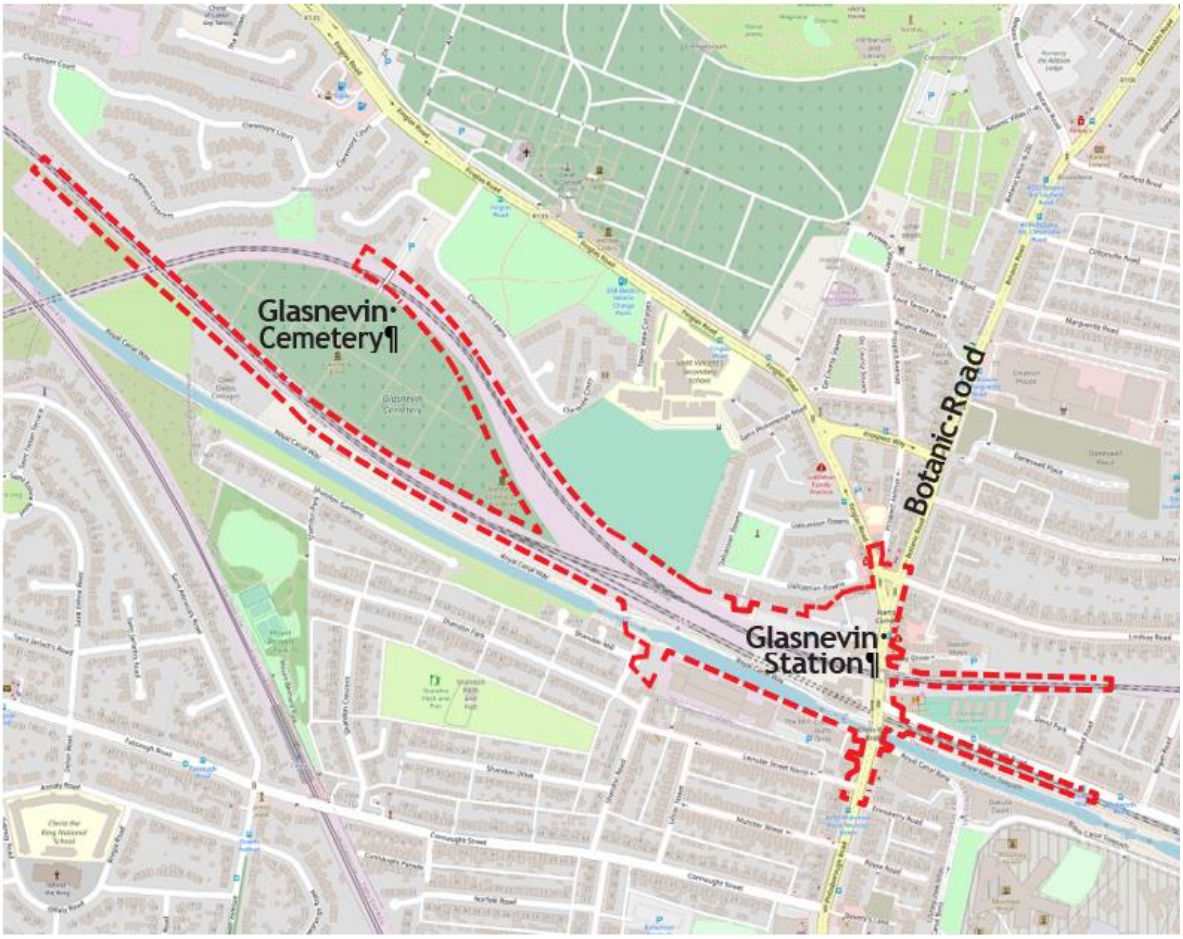
Refer to drawings ML1-JAI-EIA-ROUT_XXDR-Y-31100 to ML1-JAI-EIA-ROUT_XXDR-Y-31101.

Category	Number
A	4
B	28
C	0
U	0
Total	32

Table 4: Tree Removal Categories

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Glasnevin Station



Map 5: Glasnevin Station assessment boundary

Project Description

The proposed project works at Glasnevin Station include construction of the main interchange station to serve MetroLink and Iarnród Éireann, together with new station platforms and associated track realignment works for Iarnród Éireann to facilitate the station construction.

The station box, which from street level will be between 24.5m and 25.5m deep, will be constructed under both the GSWR and the MGWR railway lines.

The proposed Iarnród Éireann part of the integrated station will have new platforms designed for 8-car trains, extending west of Prospect Road, on the same side of the road as the proposed station. The existing track levels will be re-aligned by up to 2.5m down to allow for a tie-in with the station. Lowering of the tracks is also necessary to provide electrical clearances under the two overbridges carrying Prospect Road (R108/R135), this being a future provision under the DART Expansion project.

The Iarnród Éireann and the proposed Project services will be accessed directly from Prospect Road level by lifts and stairs. Escalators will be provided to the proposed Project platforms only.

Overview of existing trees

The trees within this area are located on the railway embankment, along the canal, to the rear of the Brian Boru public house and within an open space area within Dalcassian Downs.

The trees along the railway embankment are mainly sycamore (Acer pseudoplatanus) which have self-seeded in these areas. The trees along the canal are early-mature Norway maple cultivars (Acer platanoides cv) planted in a single line. The trees within Dalcassian Downs are a combination of mature specimens which were present prior to the construction of the current housing stock and trees planted as part of the landscaping works associated with the development. There is diverse mix of species and age classes within the trees in this estate with the condition of the trees generally good. Species include Himalayan birch (Betula albo-sinensis), Monterey cypress (Cupressus macrocarpa) and Leyland cypress (×Cupressus leylandii).

Update

Following further review 2 additional category B trees were identified for removal.

Arboricultural impact

A total of 44 trees were recorded within the eastern section of the station boundary, where the Glasnevin Metro station is proposed. Within this location 20 trees need to be removed to facilitate the works (refer to table 5). These are located adjacent to The Brian Boru public house. Mature Sycamore (Acer pseudoplatanus) and Ash (Fraxinus excelsior) comprise the majority of impacted trees which screen the Brian Boru carpark from the railway line. The remaining impacted trees are located between Brian Boru public house and the Dalcassian Downs residential housing estate. These include a selection of trees chosen for their landscape value and screening benefits, and include Monterey cypress (Cupressus macrocarpa), Leyland cypress (×Cupressus leylandii) and Swedish whitebeam (Sorbus aria).

Category	Number
A	2
B	15
C	3
U	1
Total (not including category 'U' trees)	20

Table 5: Tree Removal Categories (footprint of proposed Glasnevin station)

Three self seeded trees (mature sycamore and ash) have established on the embankment of the southern side of the railway line. These were inaccessible for individual assessment, though were given low/moderate value due to their location and lack of management inputs. They will all be impacted by the station construction and require felling.

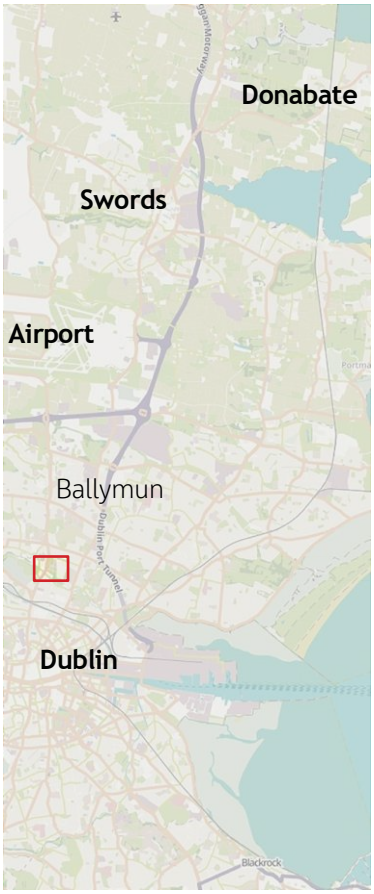
East of Botanic Road upgrades to the existing canal pathway will necessitate the removal of two early mature Norway Maples (Acer platanoides) and a single mountain ash (Sorbus aucuparia).

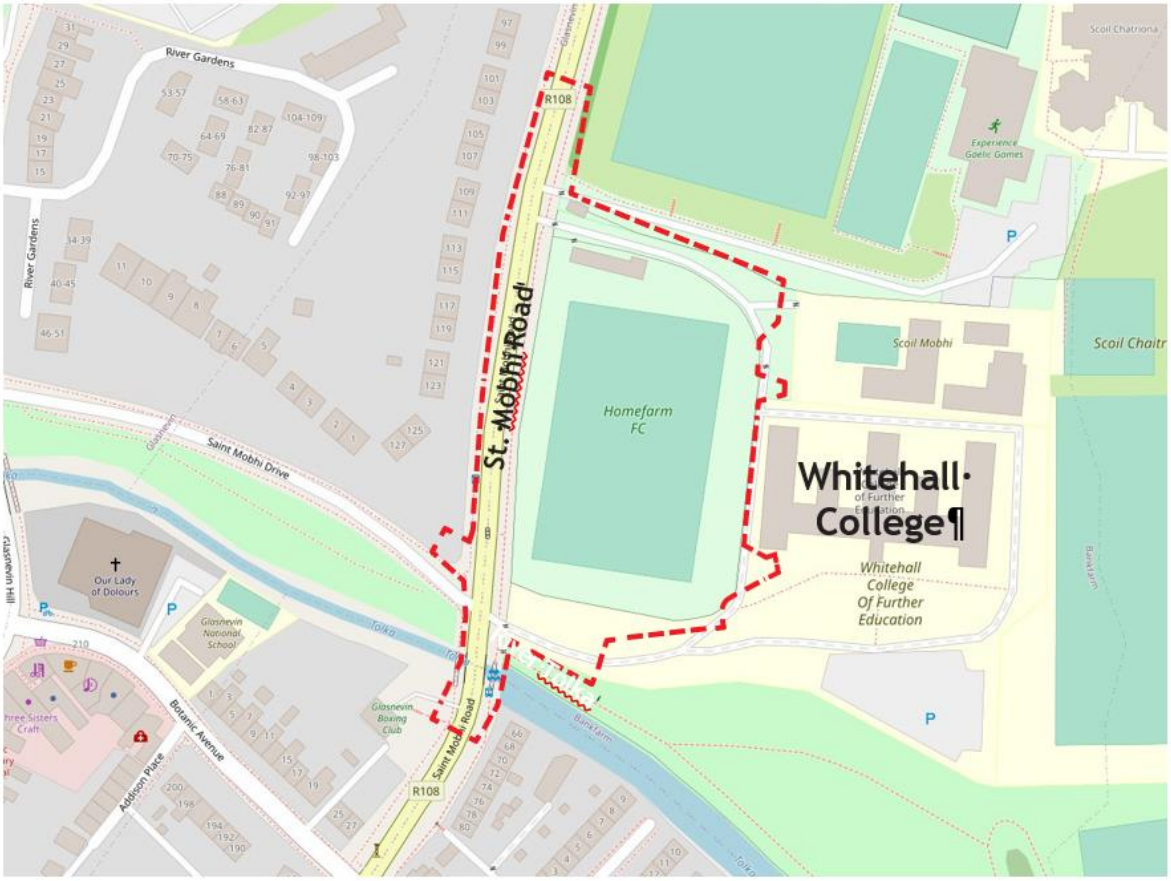
Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31098 to ML1-JAI-EIA-ROUT_XX-DR-Y-31099.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

6

Griffith Park Station





Map 6: Glasnevin Station assessment boundary

Project description

This station is designed as a typical underground cut-and-cover station, with slight adaptations to line up with the footpath and railings along St. Mobhi Road. Griffith Park Station will have three main levels in line with the typical underground station design; concourse, mezzanine and platform levels. The platforms will be 6.2m wide on each side of the tracks.

This station will not include a traction substation. The level difference between the football pitches and the road will be used as an opportunity to enhance the public realm.

At present the Home Farm Football Club playing facilities at Mobhi Road comprise a soccer pitch with the estimated dimensions of 97m x 55m and a single story changing facilities building. During the Construction Phase, the pitch will be used for construction, and it is proposed that Home Farm FC shares grounds with Whitehall Rangers FC at the proposed pitches to be located on Collins Avenue. Upon completion of the proposed Project construction Home Farm FC will be able to return to their existing site.

Overview of existing trees

A total of 115 trees were surveyed within this area. The trees within the Whitehall College of Further Education sports grounds are a mixture of mature specimens. The trees are located on the boundary with the R108 to the west and Whitehall College of Further Education to the east.

Large Monterey cypress (Cupressus macrocarpa) and Leyland cypress (x Cuprocyparis leylandii) are located on the boundary of the Homefarm training grounds with the R108.

Their condition is mixed with a number of suppressed individual trees present within the tree group. A number of these trees are also suppressing the mature trees on the R108. A large mature copper beech (Fagus sylvatica 'Purpurea') and Austrian pine (Pinus nigra) are located to the east of the grounds. These are trees of high landscape value. There are a number of trees and shrubs at the entrance and along the road to the training grounds and Scoil Mobhi. These include Canadian service berry (Amelanchier lamarckii), Himalayan birch (Betula albo-sinensis), Purple leaf cherry (Prunus nigra 'Pissardii'), sycamore (Acer pseudoplatanus) and Leyland cypress (xCuprocyparis leylandii).

The trees along Mobhi Road are mainly London plane (Platanus x hispanica) and sycamore (Acer pseudoplatanus). These are mature specimens of mixed quality though the majority of the trees are in good condition. A number are becoming suppressed by trees within the Homefarm training grounds.

There are a number of trees at the entrance to Whitehall College of Further Education on the embankment to the north and along the southern boundary with Griffith Park. The former are a mixture of mature specimens including Monterey pine (Pinus radiata) and copper beech (Fagus sylvatica 'Purpurea') with the trees on the southern boundary mainly early-mature to mature sycamore (Acer pseudoplatanus).

Update

Following review, the predicted loss of trees has increased by 6 category B and 1 category A trees.

Arboricultural impact

The impact of the proposed station will necessitate the removal of 28 trees within categories A, B & C within the boundary of the Homefarm grounds and directly south at the entrance to Whitehall College.

The majority of impacted trees are located on Homefarm's western boundary adjacent to St. Mobhí Road. Of these tree the highest number are moderate value category 'B' trees (refer to table 6).

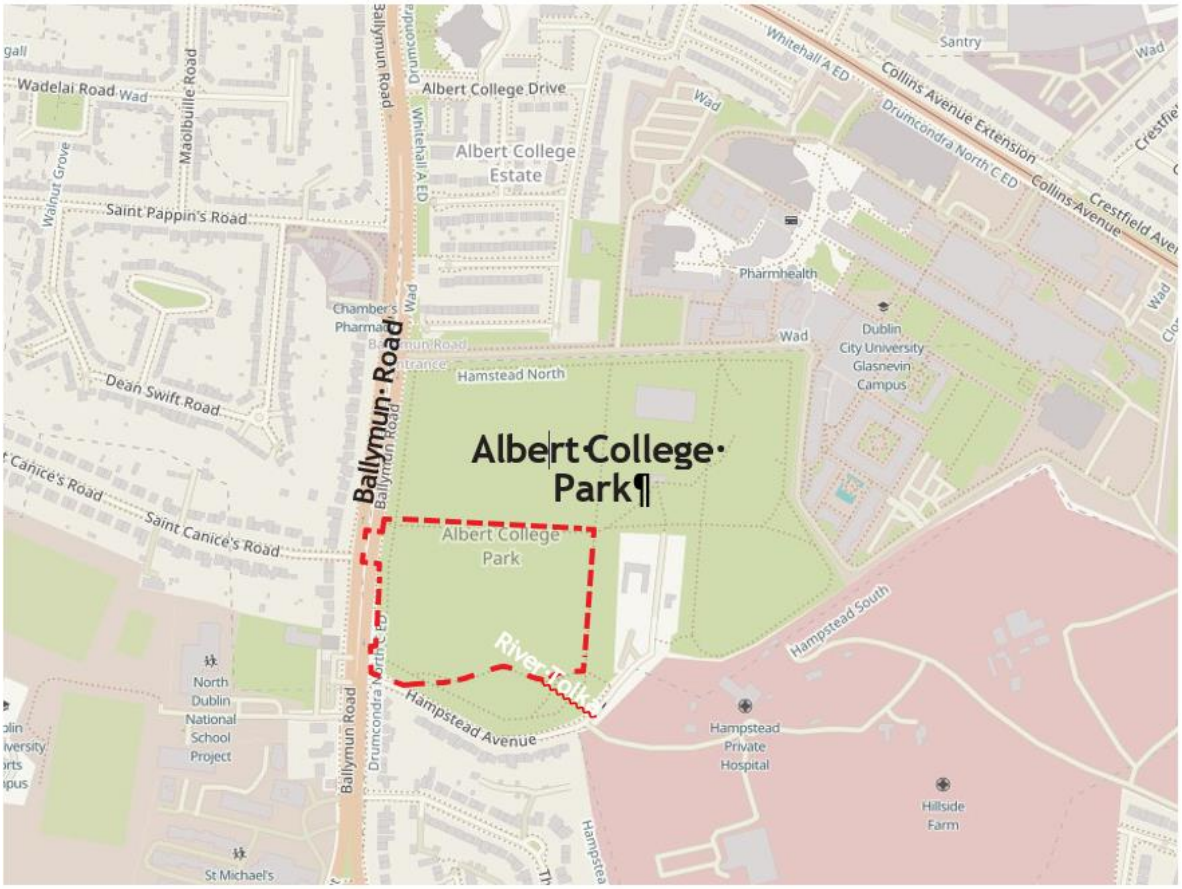
Refer to drawings ML1-JAI-EIA-ROUT_XXDR-Y-31095 to ML1-JAI-EIA-ROUT_XX-DR-Y-31097.

Category	Number
A	4
B	16
C	8
U	5
Total (not including category 'U' trees)	28

Table 6: Tree Removal Categories (within Homefarm grounds)

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Albert College Park Intervention Shaft



Map 7: Albert College Park Intervention Shaft assessment boundary

Project Description

To facilitate the MetroLink project the Albert College Park intervention shaft is required to provide appropriate tunnel ventilation and to comply with tunnel fire safety strategy by providing egress between the tunnel and the ground surface so that passengers can escape, and fire fighters can enter the tunnel.

A maintenance access road from the R108 Ballymun Road and associated hardstanding area are provided at the intervention shaft in Albert College Park. An additional emergency exit to the R018 Ballymun Road is also provided to allow for a one-way system as requested by Dublin Fire Brigade.

Overview of Existing Trees

A total of 159 trees were surveyed both within the Albert College Park and on the roadside adjacent to the park's western boundary. Within the surveyed area, the trees within Albert College Park are mostly comprised of early mature small leaved lime cultivar (Tilia cordata cv) and ash (Fraxinus excelsior). These have been planted in 130m long lines, with occasional Birch (Betula pendula) and Norway maple (Acer platanoides) on the western boundary from Ballymun Road (R108). Some of these trees exhibit suppressed canopies with associated deadwood due to local competition.

Located within the south-east corner, adjacent to the pedestrian entrance from R108, of the park is a wider mix of species, including Monterey cypress (Cupressus macrocarpa), Cherry cultivars (Prunus cv), smooth-leaved (holly Ilex altaclarensis), Cotoneaster cv, and sycamore (Acer pseudoplatanus).

The general condition of these trees is good with issues confined to light suppressed deadwood and confined canopies from local competition.

Arboricultural impact

The proposed construction of the intervention shaft will necessitate the removal of 95 trees located along a 120-meter section of the south-west boundary of the park. Of these, 80 trees are early mature small leaved lime cultivar category B and 15 ash category C (refer to table 7).

Category	Number
A	0
B	80
C	15
U	1
Total (not including category 'U' trees)	95

Table 7: Tree Removal Categories (within Albert College Park)

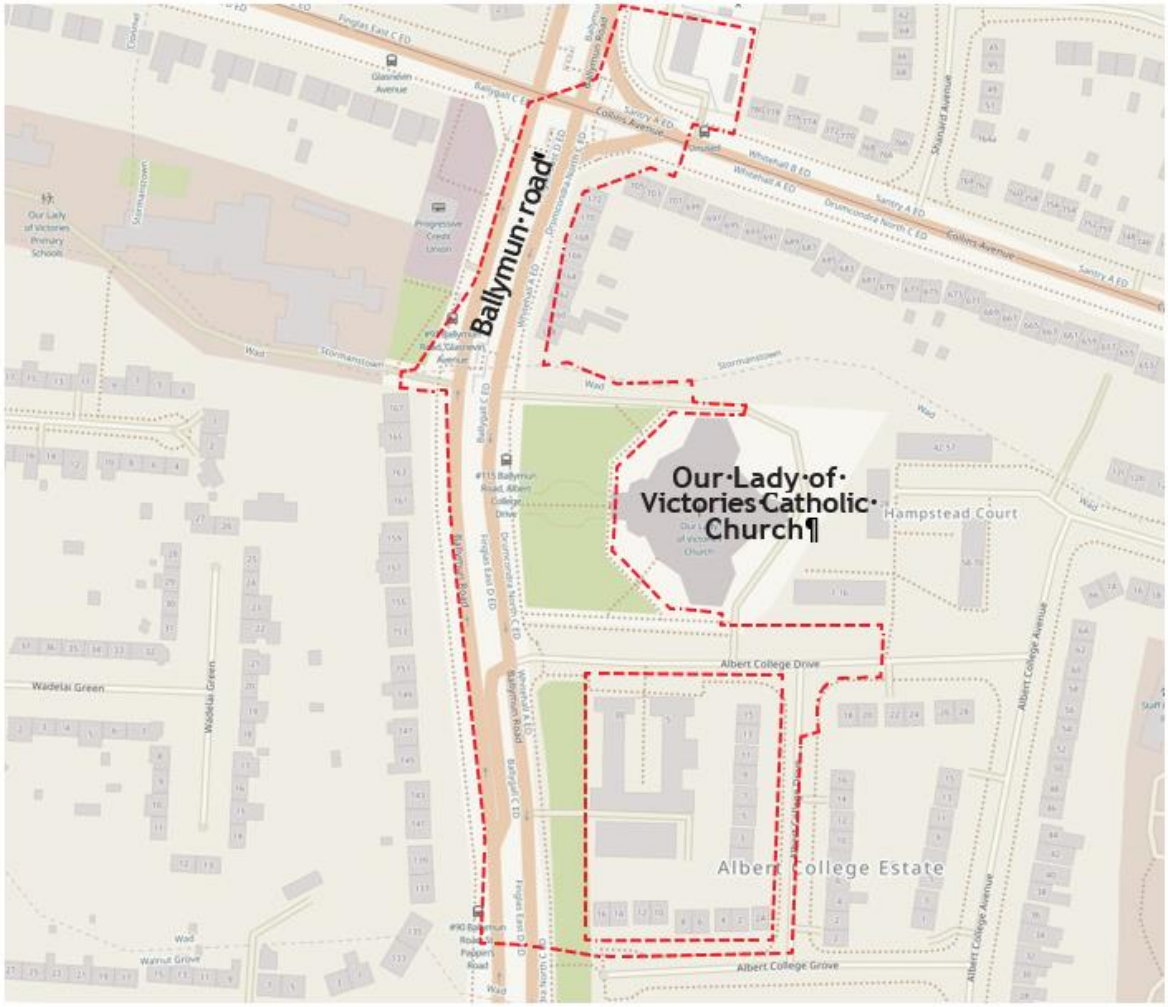
The majority of these trees are within category 'B' (moderate value). A noted mitigating factor for the loss of these ash, is their susceptibility to ash dieback (Hymenoscyphus fraxineus), which is expected to kill up to 80% of the species in less isolated areas such as this location in the near future.

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31093 to ML1-JAI-EIA-ROUT_XX-DR-Y-31094.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

8

Collins Avenue Station



Map 8: Collins Avenue Station assessment boundary

Project description

The Collins Avenue Station lies underground station with one main entrance canopy and associated architectural pop ups within the above landscape. The station is located to the west of Our Lady of Victories Church and partially under the R108 road. The proposed landscape scheme will have future planting, open drains and swales to manage surface water sustainably, verge planting to direct pedestrians and cyclist, and a new plaza to integrate the street with the proposed Project and its architectural features as well as linking the church with the adjacent new transport infrastructure.

Overview of existing trees

A total of 148 trees were surveyed within this area. The trees within this section of the site are located within the central median of the R108 (Ballymun Road) and within the grounds of Our Lady of Victories Church. The trees within the central median streetscape are young to early-mature Norway maple cultivars (Acer platanoides cv). Their general condition is fair to poor with one dead specimen present. A relatively well developed fastigiate hornbeam (Carpinus betulus 'Fastigiata') is located with paving on the eastern side of the road.

There are a mixture of trees and shrubs with the grounds of the Our Lady of Victories Church. The trees on the northern boundary are mature fastigiate hornbeam (Carpinus betulus 'Fastigiata') with a range of shrubs and young trees within the lawn area to the west of the church. The shrubs include viburnum (Viburnum x bodnantense 'Dawn'),

lauristine (Viburnum tinus) and barberry cultivars (Berberis cv). Most are relatively well developed. The trees in this area are a young oak (Quercus robur), a small-leaved lime cultivar (Tilia cordata cv) and a Norway maple cultivar (Acer platanoides cv). The condition of the trees is generally good.

Arboricultural impact

The construction of the proposed station and associated landscaping design will necessitate the removal of 98 trees and shrubs within the assessment boundary.

The majority of these trees are located along the R108 eastern roadside, within an open grass area west of the Albert College housing estate and within the grounds between Our Lady of Victories church and the R108.

Category	Number
A	1
B	42
C	10
U	5
Shrubs	40
Total (not including category 'U' trees)	98

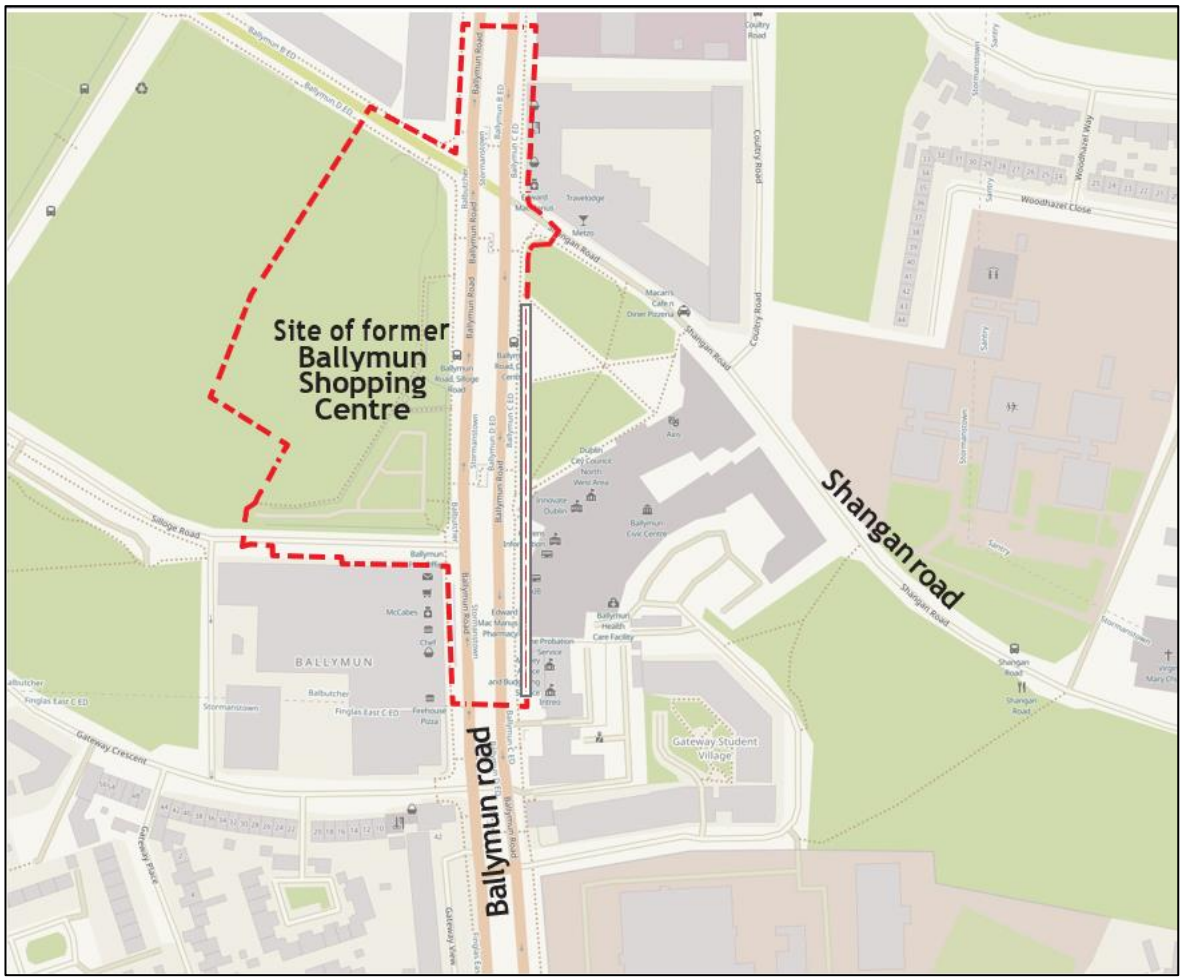
Table 8: Tree Removal Categories

During the design stage efforts were made to retain the majority of the hornbeam trees that screen the northern boundary of Our Lady of Victories church with the adjacent houses directly north (those on the southern side of Collins Avenue – east of the intersection of R108 and Collins Avenue). These trees have been mostly shown for retention, as they provide an important screen to adjacent residents, with the exceptions of three trees that are necessary due to required services and a single tree overhanging the R108 roadside that had failed. The loss of trees within the Our Lady of Victories church grounds represents a diverse mix of younger and early mature ornamental specimens. As noted in table 8, the majority of affected trees are of moderate quality.

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31090 to ML1-JAI-EIA-ROUT_XX-DR-Y-31092.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Ballymun Station



Map 9: Ballymun Station assessment boundary

Project Description

Ballymun Station will be adjacent to the R108 Ballymun Road, partly under the site of the old shopping center which has been demolished. The Ballymun Station lies underground station with one main entrance canopy and associated architectural pop ups within the streetscape above. The station is located west of the R108 close to the Ballymun Civic Centre, between Silloge Road and Balbutcher Road. The proposed landscape scheme consists of rainwater gardens and swales with large mature trees dispersed throughout. A large feature tree is located at the southern end of the site in front of the main canopy entrance. The landscape arrangement is around the architectural pop ups. These include skylights, equipment exits, lifts, fire brigade access, etc. The adjacent development land has a landscape avenue of trees as well as a planted buffer to the site hoarding line to the west.

Overview of Existing Trees

A total of 90 trees were surveyed within this area. The existing trees within the assessment boundary are located in the central median adjacent to the site of the former Ballymun Shopping Centre.

The trees within the central median are small leaf lime cultivars (*Tilia cordata* CV) planted approximately twenty years ago. Their development has been restricted due to limited root space. Many are rather sparse and underdeveloped as a result.

Update

The original submission identified 17 trees within the central median on the R108 at Ballymun to be removed to facilitate BusConnects works. These trees are now shown for retention within the arboricultural impact drawings within this report.

Category	Number
A	0
B	0
C	0
U	0
Total	0

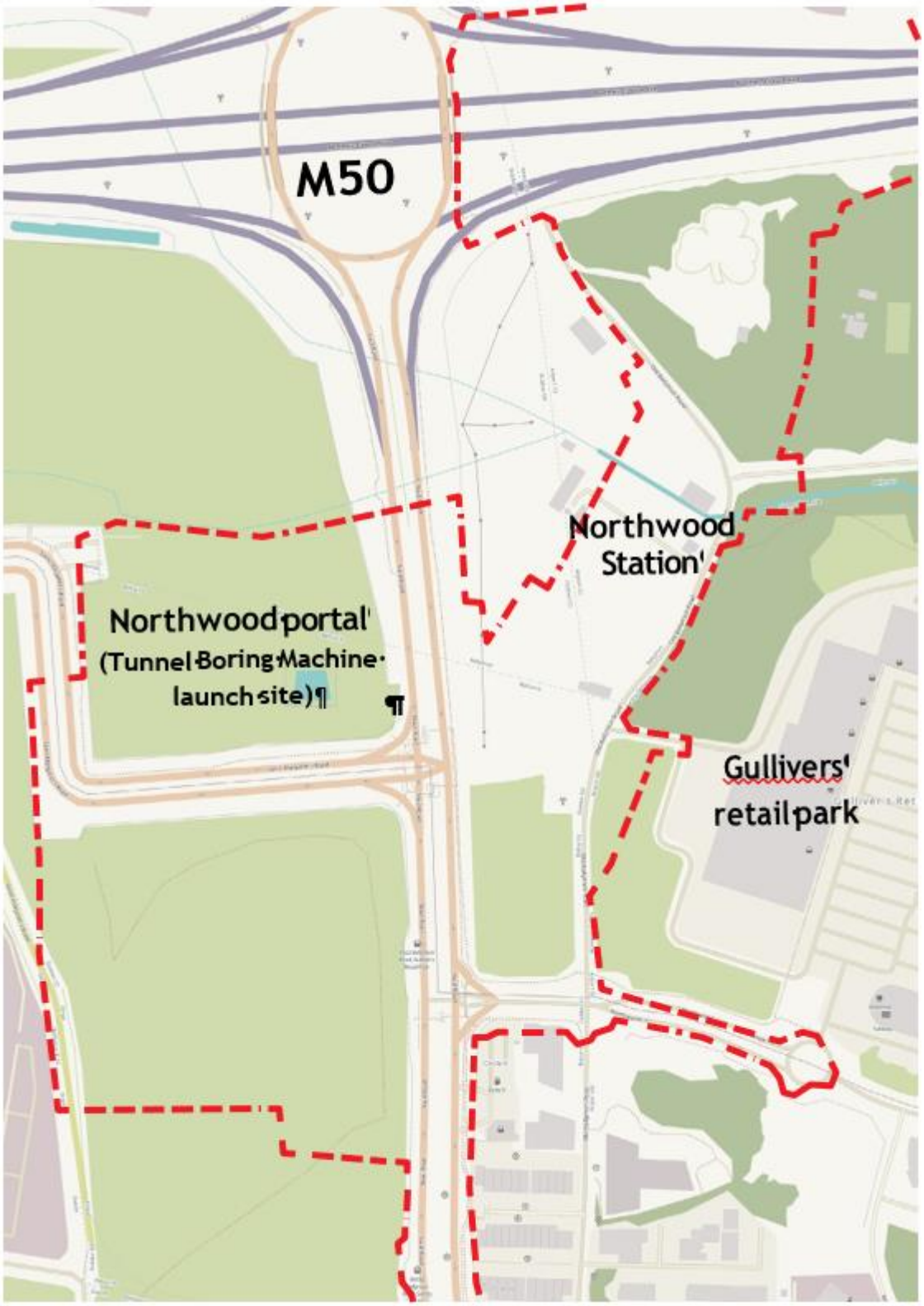
Table 9: Tree Removal Categories

Arboricultural impact

The proposed construction of the Ballymun Metro station will necessitate the removal of 0 trees within the central median (refer to table 9). Although the station footprint does not directly impact these trees, roadway realignment during the construction phase will. Table 9 identifies a total of 0 trees across all categories to be removed. Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31084 to ML1JAI-EIA-ROUT_XX-DR-Y-31089.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Northwood Station and Portal



Map 9: Northwood Station and Portal assessment boundary

Project Description

Northwood Station is an underground station. It has two entrance canopies, one to the east and one to the west of the R108. The underground station straddles the road, crossing beneath the road. There is interaction between the Bus Connects project and

the wider cycle network as well as improved pedestrian connectivity at grade across the road network. The proposed landscape scheme is cognizant of future adjacent development, with temporary schemes in place coinciding with future development plans and approved planning application.

Approximately 100m south of the M50 Crossing, the retained cut section ends, and the alignment progresses downwards in a 350m long ramp that ends at Northwood Station. The associated Northwood Portal is located to the southwest of Northwood Station box and will be used as the TBM (Tunnel Boring Machine) launch site. At the end of the construction phase the portal will be backfilled and the tunnel linked to Northwood Station.

Overview of Existing Trees

The trees within St. Anne's are large Monterey cypress (Cupressus macrocarpa) at the entrance with self-seeded ash and sycamore along the boundary with the Charter School Hill. Screen planting on this boundary and that with the M50 contains early-mature Monterey pine (Pinus radiata) and Scots pine (Pinus sylvestris) and there is also a line of Leyland cypress (xCuprocyparis leylandii) screening the M50.

Mature horse chestnut (Aesculus hippocastanum) and sycamore are located to either side of the access road. The condition of the horse chestnut (Aesculus hippocastanum) is mixed with age related defects and infection from bleeding canker (Pseudomonas syringae pathovar aesculi). The sycamore are generally in good condition.

Inside the screen plantings to the north and west are plantings of gum (Eucalyptus spp.), ash (Fraxinus excelsior) and, more occasionally beech (Fagus sylvatica) sycamore (Acer pseudoplatanus) and larch (Larix decidua).

An avenue of small leaved lime cultivars (Tilia cordata cv) have developed well with cherry cultivars (Prunus cv), red oak (Quercus rubra) and birch (Betula pendula) and forming an edge to the croquet lawn. Within the central area of the garden there is a very large well-maintained maze of beech in the shape of a shamrock.

Directly south of the M50 are a roadside screen planting of silver birch (Betula pendula), ash (Fraxinus excelsior) and occasional cherry (Prunus spp.). These are unmanaged and closely planted which is likely to result in reduced long-term potential.

The trees within the proposed portal site once formed elements of agricultural hedgerows within agricultural lands. The predominant species are sycamore (Acer pseudoplatanus) and ash with more occasional blackthorn (Prunus spinosa) and goat willow (Salix caprea). The condition of the trees is mixed with occasional areas of fire damage and general decay within individual specimens.

Update

Following a review of the site boundary, a total of 28 additional trees were identified for inclusion within this report bringing the total number of trees assessed in this area to 922. A further review of the impact on trees has increased the number of trees to be removed from 650 to 651 This includes the impact on the additional trees assessed. There has been no change relative to the impact on trees at Northwood Portal.

Arboricultural Impact at Northwood Station

A total of 970 trees were recorded and assessed within the Northwood Station site. Of these the most common species types were Leyland cypress (×Cupressus leylandii), Ash (Fraxinus excelsior) and Monterey pine (Pinus radiata). Although few high value specimens were recorded, the general condition of trees was moderate to good. Due to relatively tight planting the majority of these trees were drawn up in form and they should therefore only be considered for retention as part of sheltered groups, as individual retained trees would be susceptible to wind throw.

Category	Number
A	19
B	417
C	215
U	68
Unknown	39
Total (not including category 'U' or unknown trees)	651

Table 10: Tree Removal Categories for Northwood Station

The impact of the proposed Northwood Station and compound area will necessitate the removal of 651 trees.

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31077 to ML1-JAI-EIA-ROUT_XX-DR-Y-31083.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Update

The trees in this area were described within the Northwood Portal and Northwood Station. These are now considered to be all within Northwood Station.

10

Dardistown Station and Depot

Map 10: Dardistown Station and Depot assessment boundary

Project Description

The Dardistown Depot will be 19.5ha in size and located in Dardistown which is located between the M50 Motorway and Dublin Airport. The station at Dardistown forms part of the proposed Project, although its status is different to the other stations. It will be constructed as part of the proposed Project but will not be fitted out and opened to the public when the project first opens. The passenger demand for the station at Dardistown will come from future development of the surrounding lands, hence it will not be needed until such time as third-party developments in that area are progressed.

The design concept follows the template for a station in retained cut. However, one main difference would be that the retained walls would be designed in such a way as to maintain the design concept with the other stations in retained cut while screening views of trains going to and from the depot.

The Dardistown station would not be opened to the public on opening day of MetroLink. Instead, it will serve as access to the adjacent Dardistown Depot for staff for which there is an underground tunnel access. The surface of the station will be treated in a simplified manner, with large mature trees, blocks of shrub planting and a pedestrian network paved for future use. The surface of the station itself will be fenced off from public use.

Overview of Existing Trees

The trees within this boundary are a mix of those typically found within agricultural field boundaries / hedgerows; hawthorn (Crataegus monogyna) and ash (Fraxinus excelsior). A total of 9 hedgerows are located within the Dardistown depot and station area. A large Leyland cypress hedge (HR3) forms a boundary with the Ballymun Kickhams pitches.

Update

With the exception of hedgerow #9 (table 12) a review of original of the assessment was undertaken. This has now characterized the hedgerows as all being essentially the same and composed of hawthorn and multi-stemmed ash with no individual standard trees

identified. The hedgerow was therefore assessed as one, rather than as individual trees. Previously the trees were assessed individually rather than as part of the hedgerow. Trees on the boundary within the airport were identified and assessed as individual specimens.

Arboricultural Impact

The impact of the proposed works on hedgerows is outlined within table 11. Hedgerow #3 which borders the Ballymun Kickhams pitches is to be retained in full. Hedgerow #7 including 17 trees will be largely retained on the boundary with the Old Airport Road for screening purposes.

The impacted hedgerows are primarily composed of ash (Fraxinus excelsior) and hawthorn (Crataegus monogyna). The condition of the hedgerows is variable with management mixed over the area. The is extensive evidence of ash dieback (Hymenoscyphus fraxineus) within this population of trees reducing their long-term potential considerably.

A group of 30 younger trees planted for screening, chiefly hawthorn and silver birch (Betula pendula), along the south boundary from the M50 (hedgerow #9, 65m in length) will be impacted by approximately 50% to accommodate the entry of the track.

Refer to drawings ML1-JAI-EIA-ROUT_XX-DR-Y-31053 to ML1-JAI-EIA-ROUT_XX-DR-Y-31076.

Hedgerow ref	% to be removed
1	80
2	100
3	0
4	100
5	100
6	50
7	10
8	20
9	50

Table 11: Hedgerow impacts

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Fosterstown Accommodation Bridge and ESBN substation

Map 11: Fosterstown Accommodation Bridge and ESBN substation assessment boundary

Project Description

The proposed Project alignment will intersect the access road to McComish Limited property. This will require a new bridge over the proposed Project alignment in order to maintain full access to this property. In addition, the alignment intersects with the surrounding farmland, and a farm underpass will be provided in order to prevent severance of the farming unit.

South of this, one of two GIS transmission power substations will be located near the DANP which will transform the incoming high voltage power supplied by ESBN to medium voltage power to operate the proposed Project.

The substation compound will be located immediately north of the Naul Road and east of the DANP and will include both the ESBN substation, MetroLink substation and associated transformers. An underground power line will connect the MetroLink substation to the proposed alignment. An access road to the GIS transmission power substation will be provided from the Naul Road.

Overview of Existing Trees

For the purposes of the assessment, this area has been divided into two sections; North of Dublin Airport and McComish lands.

North of Dublin Airport is made up predominantly of ash (Fraxinus excelsior) which is located on the side of hedgerow ditches. The trees at this location cover a range of age-classes and conditions ranging from poor to good. Many have been coppiced in the past with resulting multiple basal regrowths.

At McComish lands, the entrance road to the existing quarry facility is lined on either side by young lime (Tilia cordata) which are well developed.

Update

The Original AIA Report noted the existing hedgerow at the northern boundary. This is not relevant as the trees in this area are not within the redline boundary. Additionally, a correction in the calculations used in the Original AIA Report has led to a minor change

in the number of trees for removal. There are 62 category B trees for removal and 2 category C trees for removal.

Arboricultural Impact

To accommodate the Metro alignment, a total of 330m of agricultural hedgerows will require removal. The hedgerows are predominantly mature hawthorn (Crataegus monogyna) and elder (Sambucus nigra). The larger of the mature hawthorn are 400dbh and 7m high. Bramble (Rubus fruticosus) extends 2-5m from some of these hedgerows.

Within these hedgerows are 7 ash (Fraxinus excelsior) trees. These ash trees cover a range of age classes in a range of conditions from poor to good (refer to table 12). Many have been coppiced in the past with resulting multiple basal regrowth's.

Category	Number
A	0
B	7
C	2
U	1
Total (not including category 'U' trees)	9

Table 12: Tree Removal Categories (within North of Dublin Airport)

The impact from the proposed construction of the Fosterstown accommodation bridge will necessitate the removal of 55 young lime (Tilia cordata). These trees are located either side of the entrance road to the McComish facility from the R132 (refer to table 13).

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Category	Number
A	0
B	55
C	0
U	0
Total (not including category 'U' trees)	55

Table 13: Tree Removal Categories (within McComish lands)

12

Fosterstown Station

Map 12: Fosterstown Station assessment boundary

Project description

The proposed Fosterstown Station is located between the R132 Swords Bypass and the Airside Retail Park. The proposed location will require the demolition of a large retail unit at the west end of the retail park. As a result of the retail unit demolition, there will be requirement for the realignment of the internal road network within Airside Retail Park. The realigned internal road network will also be used to provide access to the station, associated drop-off, relocated Airside substations, and relocated telecommunications mast.

Fosterstown Station has an associated streetscape and plaza with further integration into a network of paths and a linear park which links to the north towards Swords Central Station and to the south Airside Retail Park and Nevinstown.

Overview of existing trees

The trees within this boundary are a mix of those typically found within agricultural field boundaries; hawthorn (Crataegus monogyna) and ash (Fraxinus excelsior), cypress hedging within private residential gardens along with ornamental varieties such as maples (i.e. Norway maple (Acer platanoides)) and compact lime cultivars within the car park area south of the Airside Retail Park.

Update

Additional young trees within the carpark area are included within this report. This reflects the most up to date position.

Arboricultural impact

The proposed Fosterstown station and track alignment will result in the loss of 26 trees (5 of which have failed) and 264m of agricultural hedgerow (refer to table 15). A total of 26 trees will be removed from the Airside car park, directly south of the Airside shopping center.

The majority of these are young Norway maple (Acer platanoides). Other species include early mature fastigiate oak (Quercus robur 'Fastigiata Koster'), sycamore cultivar (Acer pseudoplatanus cv) and lime cultivar (Tilia cv). A fastigiate oak has failed and should be removed regardless of future construction plans.

The construction of the Fosterstown Station and MetroLink alignment within agricultural fields north of the Airside Shopping Centre, will necessitate the removal of 264m of hedgerows. These hedgerows which are primarily populated by hawthorn (Crataegus monogyna) and ash (Fraxinus excelsior) are currently unmanaged and as a result have open sections becoming colonised by bramble. They contain a total of 14 mature ash trees of mixed condition, 5 of which have failed.

All trees within four private residents on the eastern side of the R132 will be removed. The effected trees are young to early-mature, they included Norway maple (Acer platanoides) x2, purple leaved Norway maple (Acer platanoides 'Crimson King') x1, mountain ash (Sorbus aucuparia) x2, yew (Taxus baccata) x2, Lawson cypress, (Chamaecyparis lawsoniana) x1 and a single mature ash on an agricultural field boundary.

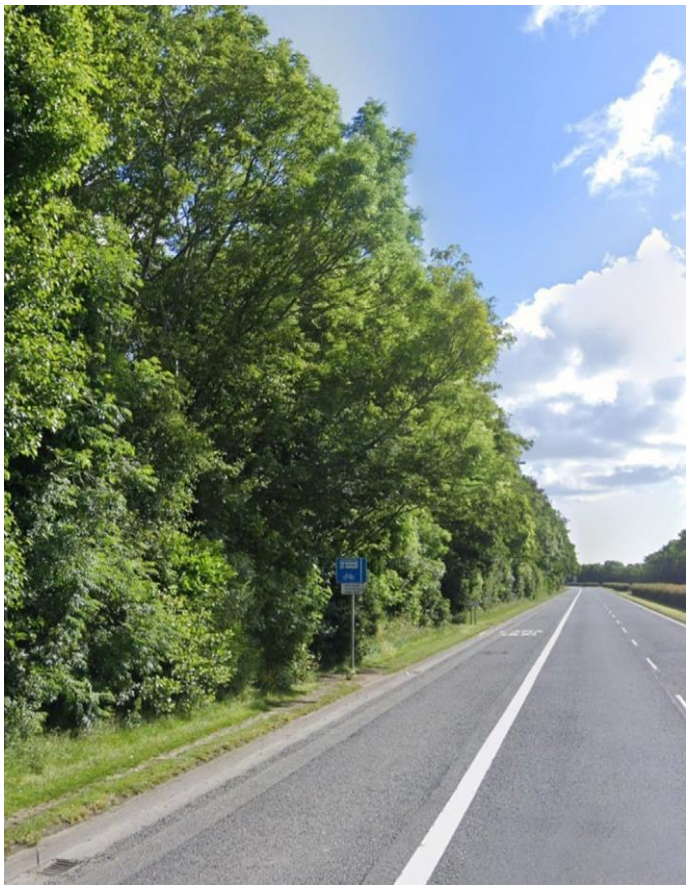
Category	Number
A	0
B	12
C	14
U	0
Total (not including category 'U' trees)	26

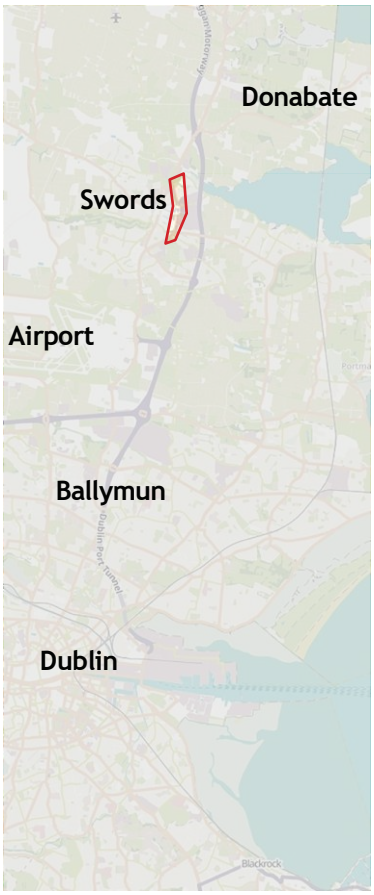
Table 14: Tree Removal Categories

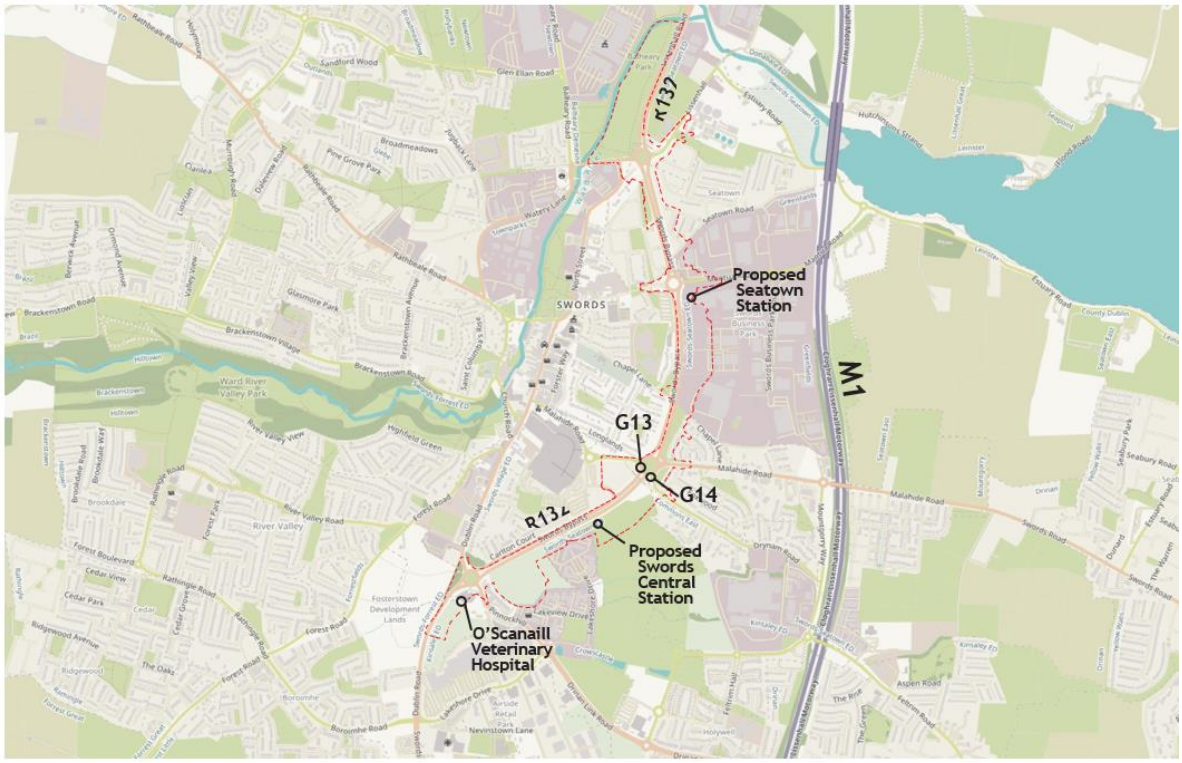
A Leyland hedge (×Cupressus leylandii) (140m in length) adjacent to the Tara Winthrop Private Clinic will be removed. However, it is hoped to be able to retain this hedge as screening during construction.

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.

Swords Bypass R132 including Swords Central and Seatown Stations







Map 13: R132 Assessment Boundary

Arboricultural Impact at Swords Central

The MetroLink route along this section adjacent to O'Scanaill Veterinary Hospital will contain a mixture of cut and cover and retained cut for the proposed track alignment. A total of 70 trees will be impacted (three of which have failed). This area contains a mix of higher value and more established trees.

These impacted trees are chiefly comprised of mature hybrid black poplar (Populus ×canadensis), and early mature small leaf lime (Tilia cordata).The effected trees are located west of the veterinary hospital, between it and the R132.

Category	Number
A	2
B	56
C	12
U	2
Unknown	1
Total (not including category 'U' trees)	70

Table 15: Tree Removal Categories

Refer to drawing ML1-JAI-EIA-ROUT_XX-DR-Y-31030 to ML1-JAI-EIA-ROUT_XX-DR-Y-31042.

Arboricultural Impact at North Dublin Corporate Park

The MetroLink route and associated landscaping with necessitate the removal of 35 trees within these grounds. The majority of these trees are of a younger age profile. Located on the eastern boundary of the grounds a line of Leyland cypress (xCuprocyparis leylandii) forms a hedge to an average height to 9m. These trees have been generally well managed, although they may have a reduced life span due to their close planting.

Category	Number
A	0
B	19
C	15
U	0
Total (not including failed trees)	35

Table 16. North Dublin Corporate Park Tree Removal Categories

Update

On review, the trees and shrubs within this area were determined to be outside the red line boundary.

Arboricultural Impact at Seatown Station

Category	Number
A	2
B	5
C	1
U	1
Total (not including failed trees)	8

Table 17. Seatown Station Tree Removal Categories

Arboricultural Impact along screening trees adjacent to the R132

Overview of existing trees

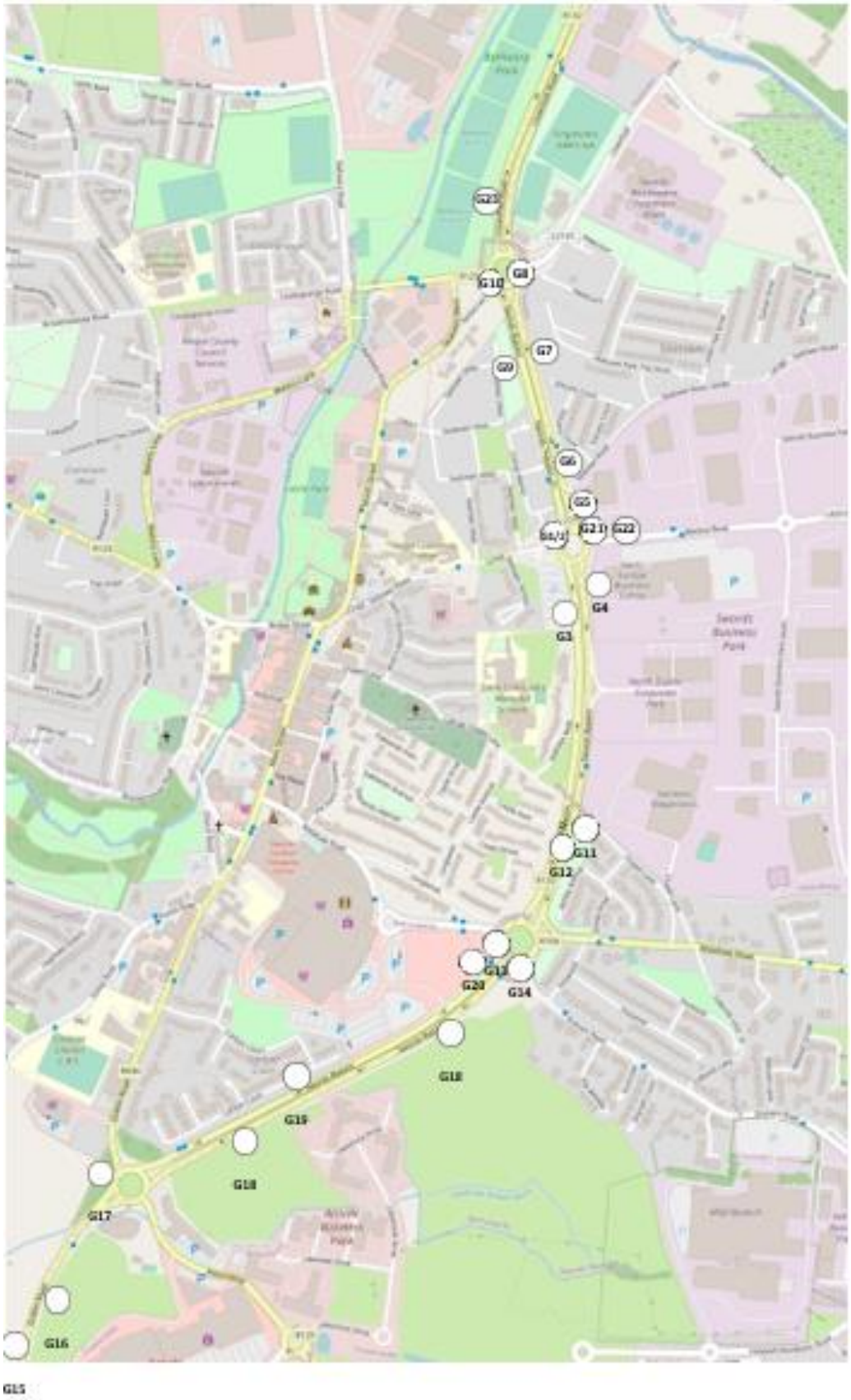
The screen plantings are composed of ash (Fraxinus excelsior), alder (Alder incana), poplar (Populus spp.), Norway maple (Acer platanoides), birch (Betula pendula) and beech (Fagus sylvatica) with what appear to be self-seeded sycamore (Acer pseudoplatanus) scattered throughout the plantings.

The age-classes of these trees is from young to mature. This is determined not by age but growth realised within the tightly spaced plantings. Smaller trees can be considered to be those which have achieved limited growth either due to an inherent inability to compete with faster growing trees with larger trees such as poplar forming dominant specimens of mature stature due to their fast growth and ability to out-compete other trees.

The areas surrounding the roundabouts and walkways contain plantings of similar species with birch (Betula pendula), ash (Fraxinus excelsior) and Norway maple (Acer platanoides) with occasional Monterey pine (Pinus radiata). Management of the screen plantings appears to have been limited to occasional thinning. This has been appropriate to date but further, more focused management inputs will be required in the near future.

Impact on Existing Trees

The MetroLink route, construction compounds and associated landscaping, will require the removal of substantial sections of trees screening the eastern and western sides of the R132 Swords Bypass. Approximately 1741 trees or 2286m will need to be removed to accommodate construction (of these an estimated 126 are located within Balheary Park).



Map 14: R132 tree groups

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
G1	9	B	Located on the north-eastern section of the Seatown roundabout. A planting of nine early mature birch, ash and Norway maple in a close grouping (1.5m-2m spacing). Drawn up due to local competition. No visible defects.	Norway maple	0	5	0	10-11	190	0%
				Ash	0	2	0			
				Birch	0	2	0			
G2	21	B	Located on the north-eastern section of the Seatown roundabout. A planting of 21 early mature Ash, Norway maple, birch, holm oak and pedunculate oak. Well spaced (4m average). No defects visible.	Ash	0	10	0	12-13	220	0%
				Norway maple	0	5	0			
				Birch	0	3	0			
				Oak	0	1	0			
				Holm oak	2	0	0			
G3	468	C/B	Located on the western side of a section of the R132 between the Malahide Road roundabout and the Seatown roundabout. This roadside screen planting is chiefly composed of mature poplars. These dominate an understory of ash and alder. Self-seeded sycamore compete for remaining space.	Poplar	4	15	52	12-16	270	5%
				Hazel	74	0	0			

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
				Ash	41	56	4			
				Alder	0	37	4			
				Sycamore	64	23	0			
				Birch	0	11	2			
				Larch	7	0	0			
				Beech	29	39	0			
				Willow	0	2	4			
G4	151	C	Located on the eastern side of a section of the R132 between the Malahide Road roundabout and the Seatown roundabout, north of the North Dublin Corporate Park. Roadside screening of alder, ash and beech. Unmanaged with high proportion of selfseeded sycamore present.	Sycamore	0	62	0	Height (average m)	DBH (average mm)	100%
				Alder	0	25	0	7-11	250	
				Ash	13	13	0			
				Hazel	25	0	0			
				Beech	0	13	0			
G5	46	C	Located on the eastern side of the R132 north of the Seatown roundabout. A 50 metre long linear planting of chiefly early mature ash trees with	Species	Age class: Young	Age class: Early	Age class: Mature	Height (average m)	DBH (average mm)	100%

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
			occasional birch. Unmanaged with trees drawn up as a result.			mature				
				Ash	9	17	0	8-12	220	
				Birch	11	3	3			
				larch	3	0	0			
G6	22	B/C	Section of planted sycamore. Spaced 3m apart. Interspersed with early mature ash and occasional self seeded young beech present.	Sycamore	0	11	1	Height (average m)	DBH (average mm)	100%
				Ash	0	6	0	14	400	
				Beech	4	0	0			
G7	338	B/C	Closely spaced (1.5m). Trees drawn up as a result. Wooded area extended 30m east. Canopies raised 8m over hard shoulder for road management.	Species	Age class: Young	Age class: Early mature	Age class: Mature	8-13	290	100%
				Beech	88	87	0			
				Hazel	15	0	0			
				Birch	0	45	44			
				Alder	0	29	0			
				Sycamore	15	15	0			

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
G8	25	B	Located directly east of the Estuary Roundabout. A linear planting of 21 early mature Norway maple and 4 early mature birch. No defects visible.	Species	Age class: Young	Age class: Early mature	Age class: Mature	8-9	310	100%
				Norway maple	0	21	0			
				Birch	0	4	0			
G9	550	C/B	Located on the western side of a section of the R132 between the Seatown roundabout and the estuary roundabout. The section is dominated by 41 mature poplar. The first 18 of these poplar, nearest the Seatown roundabout, have recently been topped to accommodate residents in Comyn Manor apartments. This section contains a diverse variety of early mature trees, chiefly sycamore, beech and alder.	Species	Age class: Young	Age class: Early mature	Age class: Mature	10-13	290	50%
				Poplar	0	6	41			
				Sycamore	45	149	0			
				Beech	43	85	0			
				Alder	0	43	21			
				Ash	44	23	0			
				Hazel	28	0	0			
				Birch	0	22	0			
G10	4	B	Located directly west of the Estuary Roundabout. A linear planting of three early mature Norway maple and one young beech.	Species	Age class: Young	Age class: Early	Age class: Mature	7	300	100%

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
						mature				
				Norway maple	0	3	0	7	300	
				Beech	1	0	0			
G11	158	C	Located on the eastern roadside of the R132 between the Seatown roundabout and Malahide road roundabout. An unmanaged screening of Norway maple and ash.	Species	Age class: Young	Age class: Early mature	Age class: Mature	8-13	260	100%
				Norway maple	0	29	28			
				Sycamore	42	0	0			
				Ash	14	30	0			
				Alder	15	0	0			
G12	30	C/B	Located within a protected median between the Seatown roundabout and Malahide road roundabout are 28 early mature poplar planted in two lines. Two early mature willow flank each send, north and south.	Species	Age class: Young	Age class: Early mature	Age class: Mature	14	240	0%
				Poplar	0	28	0			
				Willow	0	2	0			
G13	68	B	Located directly west of the Malahide road roundabout. A group of 68 trees spaced 2-3m apart that are drawn up due to light competition.	Species	Age class: Young	Age class: Early	Age class: Mature	15	220	50%

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
						mature				
				Alder	0	6	0			
				Ash	0	25	0			
				Birch	0	6	0			
				Norway maple	1	29	0			
				Sycamore	0	1	0			
G14	30	B	Located directly east of the Malahide road roundabout. A group of 44 trees planted in a scattered formation on a grass verge. Canopy relativity well developed due to ample (3m+) planting spacing. No visible defects.	Species	Age class: Young	Age class: Early mature	Age class: Mature	16	280	100%
				Alder	0	4	0			
				Norway	2	19	0			
				Ash	0	10	0			
				Horse chestnut	1	4	0			
				Birch	0	3	0			
				Beech	1	0	0			
G15	7	B	A group of 7 early mature trees screening a private residence from the R132 roadway.	Species	Age class: Young	Age class: Early mature	Age class: Mature	7	300	0%
				Swedish whitebeam	0	6	0			

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
				Ash	0	1	0			
G16	21	C	Thicket of ash with understory of hawthorn adjacent to a communications mast that form a sporadic and unmanaged hedgerow.	Species	Age class: Young	Age class: Early mature	Age class: Mature	6-10	160	100%
				Ash	18	2	1			
G17	135	C/B	Located directly west of the Pinnock Hill roundabout. A thicket of densely spaced unmanaged poplar and ash.	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	0%
				Beech	12	2	0	11-15	300	
				Poplar	2	16	26			
				Sycamore	22	9	0			
				Ash	18	28	0			
G18	326	C	Located between the Pinnock Hill roundabout and the Malahide road roundabout on the eastern side of the R132. Screening agricultural fields, the Airside Business Parkand a number of additional commercial facilities from the R132 roadway. A diverse mix of birch, ash, alder and Norway maple are present.	Species	Age class: Young	Age class: Early mature	Age class: Mature	8-12	270	100% roadside screening Trees within Fujitsu Ireland Ltd not

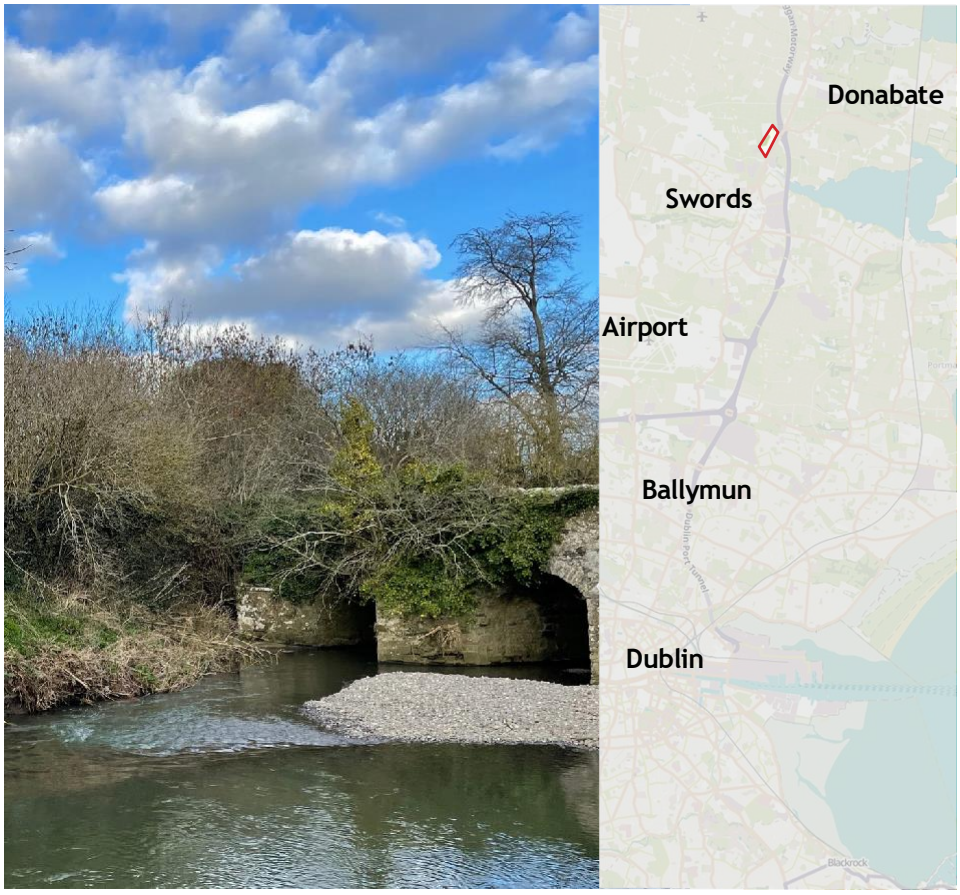
Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
										impacted by the works
				Sycamore	0	22	0			
				Birch	0	45	43			
				Norway maple	0	22	0			
				Ash	23	127	0			
				Alder	0	44	0			
G19	340	C	Located between the Pinnock Hill roundabout and the Malahide road roundabout on the western side of the R132. Chiefly composed of ash and alder with occasional self-seeded sycamore. Lower canopies have been raised 6m to due to roadway maintenance.	Species	Age class: Young	Age class: Early mature	Age class: Mature	9-14	290	0%
				Alder	45	23	181			
				Ash	23	46	0			
				Sycamore	22	0	0			
G20	67	C	Located south of the Malahide road roundabout on the western side of the R132. A 75 meter long screen planting of chiefly alder with occasional ash.	Species	Age class: Young	Age class: Early mature	Age class: Mature	9-11	260	100%
				Alder	0	60	0			
				Ash	0	7	0			

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
G21	46	B	Located between Woodies retail outlet and the Seatown roundabout, around a pedestrian overpass. A group of 46 planted early mature trees that are chiefly ash (45%+).	Species	Age class: Young	Age class: Early mature	Age class: Mature	8-12	250	100%
				Ash	0	21	0			
				Oak	0	1	0			
				Birch	1	3	0			
				Holm oak	4	0	0			
				Hazel	1	0	0			
				Sycamore	0	1	0			
				Norway maple	0	2	0			
				Alder	1	3	0			
				Larch	3	0	0			
				Whitebeam	5	0	0			
G22	9	B	Located on the northern side of the Seatown Road, adjacent to Woodies retail outlet. A linear planting of 9 early mature sycamore and lime. No defects visible.	Species	Age class: Young	Age class: Early mature	Age class: Mature	8	270	0%
				Sycamore	0	3	0			
				Lime	0	3	0			
				Birch	0	2	0			
				Alder	0	1	0			

Code	Total tree count*	Group category(s)	Description	Species	Age class: Young	Age class: Early mature	Age class: Mature	Height (average m)	DBH (average mm)	% effected
G23			Three groups of trees located within Balheary Park. These consist of poplar, birch and alder with the occasional self seed Sycamore.	Birch Alder Sycamore		20 20 20 15		10-12	290	85%
G24	40	C/B	Located at the intersection of North Street (R836) and the R125, east of the Estuary roundabout. Forming a dense unmanaged group are a mix of 40 early mature ash (some exhibiting signs of dieback), sycamore and occasional Scots pine.	Species	Age class: Young	Age class: Early mature	Age class: Mature	7	250	100%
				Sycamore	0	18	0			
				Ash	0	20	0			
				Scots pine	0	0	2			
G25	5	B/A	Located on Seatown West Road, within a private garden, screening a property (Eircode: K67 WR13). Five mature lime trees, planted in a 22m line that are somewhat drawn up due to close (<4m) spacing.	Species	Age class: Young	Age class: Early mature	Age class: Mature	18	550	100%
				Common lime	0	0	6			

14

Estuary Station and Park and Ride Facility



Map 15: Estuary Station assessment boundary

Project Description

Estuary Station will be located in the townland of Lissenhall along the R132 Swords Bypass. Access is available to both east and west sides of the station.

The landscaping scheme encompasses the development area within the red line, integrating SUDS principles (hard and soft) that tie the scheme together. These SUDs interventions are interlinked and feed into the larger detention basin to the south of the site. The planting will be of local provenance and site specific to enhance the biodiversity of the area whilst fulfilling the principles of the design.

Overview of Existing Trees

The north of the assessment boundary is composed of agricultural fields with associated hedgerows. The species mix is typical of this type of environment with ash (Fraxinus excelsior) predominating within what was most likely a clipped hawthorn (Crataegus monogyna) base with standard trees. There are also mature sycamore (Acer pseudoplatanus) and beech (Fagus sylvatica) and occasionally pedunculate oak (Quercus robur) within the hedgerows. Occasional elm (Ulmus glabra) suckers indicate that this species was present prior to the outbreak of Dutch elm disease (Ophiostoma spp.).

A mature, relatively well-developed Monterey cypress (Cupressus macrocarpa) hedge is located to the edge of the farmyard. Within the garden of the farmhouse there are a young gum (Eucalyptus spp.) a contorted willow (Salix matsudana 'Tortuosa') and an early-mature white willow (Salix alba).

A mix species stand of mature trees are located 60m south of the medieval bridge. These include mature beech (Fagus sylvatica), ash and sycamore. These trees are in relatively good condition, though the ash may be susceptible to ash dieback in the near future.

Update

In light of additional survey work additional trees were identified on Ennis Lane. As a result, an additional 19 trees have been identified for removal.

Arboricultural impact

The proposed works to construct the Estuary Station and Park and Ride Facility will necessitate the removal of a total of 60 trees, excluding category 'U' specimens. (refer to tables 18 & 19). The proposed works, by design, avoids the highest quality trees on the site. These are located within a dense stand south of the medieval bridge (which links via the Broadmeadow River to the Broadmeadow Special Area of Conservation (SAC)) located directly east of the R132. These include mature beech (Fagus sylvatica) and Ash (Fraxinus excelsior) and comprise the oldest and highest value trees of those recorded within the assessment boundary.

Of the impacted group, a large number of these are ash trees. Therefore a significant mitigating factor for the loss of these trees, is their susceptibility to ash dieback (Hymenoscyphus fraxineus), which is expected to kill up to 80% of the species, over the country in the near future.

A total of 515m of these hedgerows will be lost to facilitate proposed construction.

It is recommended that a project arborist be present on site to supervise tree removal near the mature stand (60m south of the medieval bridge) to retain as many of these higher value trees as possible, as crown reductions may be a viable alternative over felling individual trees.

Refer to drawing ML1-JAI-EIA-ROUT_XX-DR-Y-31036 to ML1-JAI-EIA-ROUT_XX-DR-Y-31044.

Category	Number
A	2
B	30
C	15
U	7
Total (not including category 'U' trees)	47

Table 18: Lissenhall

Category	Number
A	0
B	5
C	8
U	6
Total (not including category 'U' trees)	13

Table 19: Ennis Lane

The requirement to fell trees as outlined here will be mitigated by way of the landscape design development for the proposed Project. The full landscape design can be reviewed in the RO drawing pack that accompanies this application.